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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,129	01/23/2004	Mohan R. Duggi	2003.08.008.WT0	6104

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EXAMINER	
BRANDT, CHRISTOPHER M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/764,129	DUGGI, MOHAN R.	
	Examiner	Art Unit	
	Christopher M. Brandt	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

This action is in response to Applicant's amendment filed on April 30, 2007. **Claims 1, -20** are pending in the present application. **This action is made FINAL.**

Response to Arguments

Applicant's arguments filed April 30, 2007 have been fully considered but they are not persuasive.

Applicant's arguments with regards to **claims 1-20 (independent claims 1 and 11)** have been fully considered but they are not persuasive.

The argued features, i.e. a radio frequency transceiver that is able to wirelessly communicate with other transceivers of the plurality of MANET nodes according to an ad hoc on-demand vector (AODV) protocol, and a controller that is able to receive incoming data packets from the radio frequency transceiver and sends outgoing data packets to the RF transceiver, where the controller receives a Path Marker Request message that is generated by the source MANET node and retrieves first topology data that is associated with the first route from the first Path Marker Request message, with the first route topology data identifying all intermediate MANET nodes in the first route coupled to the first MANET node to the source MANET node, reads upon Billhartz in view of Lipasti as follows.

Billhartz is discussing that each mobile node includes a router that has communications device to wirelessly and bi-directionally communicate with other nodes over multiple channels via the wireless communication links. In addition, the described method can be applied to any type of On-Demand or Reactive Routing protocol such as Ad-Hoc On-Demand Vector.

Therefore, Billhartz discloses the limitation, "a radio frequency (RF) transceiver capable of wirelessly communicating with other ones of said plurality of MANET nodes according to an ad hoc on-demand vector (AODV) protocol". Moreover, Billhartz discloses a controller includes a route discovery unit to transmit route requests over each of the plurality of channels to discover routing to the destination node, and a route selection unit to select a route to the destination node at least one of the plurality of channels. Therefore, Billhartz discloses the limitation, "a controller capable of receiving incoming packets from said radio frequency (RF) transceiver and sending outgoing data packets to said RF transceiver". Billhartz also teaches that the source node sends the route request to intermediate nodes. If the node can support to the particular request, then the node forwards the route request to other intermediate nodes. The source node sends the route request to intermediate nodes. Therefore, Billhartz discloses the limitation, "wherein said controller receives a Path Marker Request message generated by said source MANET node and retrieves first route channel identifier data associated with said first route from said firth Path Marker Request message, said route first channel identifier data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said source MANET node". Lipasti cures the deficiency of Billhartz by disclosing routing addresses (i.e. topology).

With regards to applicant's argument that Lipasti does not disclose "topology", the examiner respectfully disagrees. Lipasti discloses routing addresses that are composed with additional source and destination routing addresses of a mobile ad hoc network and routing packets inside the mobile ad hoc network on the basis of routing addresses. Therefore, these

packets contain "topology" or as Lipasti teaches, the packet consists of the path (i.e. route) that includes the source and destination, as well as the next hop (intermediate node).

As a result, the argued features are written such that they read upon the cited references.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-20 are rejected under 35 USC 103(a) as being unpatentable over **Billhartz (US Patent 7,027,426 B2)** in view of **Lipasti et al. (US PGPUB 2002/0039357 A1)**.

Consider **claim 1**. Billhartz discloses for use in a mobile ad hoc network formed by a plurality of mobile ad hoc network (MANET) nodes (column 2 lines 45-56, read as a method for operating a mobile ad hoc network over a plurality of channels. The network includes a plurality of wireless mobile nodes and a plurality of wireless communication links connecting the plurality of nodes together over the plurality of channels), a first MANET node capable of collecting route information associated with a first route from a source MANET node to a

destination MANET node (the method includes, at a source node, sending a route request over each of the plurality of channels to discover routing to a destination node, and selecting a route to the destination node (column 2 lines 57-63, this route is determined by the intermediate nodes (i.e. first node)) on at least one of the plurality of channels. The route request may be sent over each of the plurality of channels sequentially, and the route request preferably includes a source node channel identifier), said first MANET node comprising:

a radio frequency (RF) transceiver capable of wirelessly communicating with other ones of said plurality of MANET nodes according to an ad hoc on-demand vector (AODV) protocol (column 6 lines 14-46, read as each mobile node 30 (including the intermediate nodes) includes a router 40 that has a communications device 42 to wirelessly and bi-directionally communicate with other nodes over multiple channels via the wireless communication links 32. In addition, the described method can be applied to any type of On-Demand or Reactive routing protocol such as Ad-Hoc On-Demand Distance Vector (AODV)); and

a controller capable of receiving incoming data packets from said a radio frequency (RF) transceiver and sending outgoing data packets to said a radio frequency (RF) transceiver (column 6 lines 45-54, read as the controller 44 includes a route discovery unit 50 to transmit route requests (inherent that it receives since it is transmitting a request from a source node) RREQ over each of the plurality of channels to discover routing to the destination node D, and a route selection unit 52 to select a route to the destination node on at least one of the plurality of channels), wherein said controller receives a Path Marker Request message generated by said source MANET node and retrieves first route channel identifier data associated with said first route from said first Path Marker Request message (column 5 lines 3-31, read as the source node

sends the route request RREQ to intermediate nodes A-C (i.e. first node). If the node can support the particular request RREQ, then the node forwards the route request RREQ to other intermediate nodes (i.e. retrieving route request and making a determination of the data associated with first route), said first route channel identifier data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said source MANET node (column 5 lines 3-18, read as the source node sends the route request RREQ to intermediate nodes A-C).

Billhartz discloses the claimed invention except he fails to explicitly disclose topology (Billhartz discloses a channel identifier).

However, Lipasti et al. (hereinafter Lipasti) disclose topology (paragraph 10, read as routing addresses).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the node of Billhartz in order to reduce the bandwidth-intensive broadcast traffic in the mobile ad hoc networks (paragraph 10).

Consider **claim 11**. Billhartz discloses for use in a mobile ad hoc network formed by a plurality of mobile ad hoc network (MANET) nodes (column 2 lines 45-56, read as a method for operating a mobile ad hoc network over a plurality of channels. The network includes a plurality of wireless mobile nodes and a plurality of wireless communication links connecting the plurality of nodes together over the plurality of channels), a method of collecting route

information in a first MANET node, the route information associated with a first route from a source MANET node to a destination MANET node, the method comprising the steps of:

receiving in the first MANET node a Path Marker Request message generated by the source MANET node (column 5 lines 3-31, column 6 lines 45-64, read as the source node sends the route request RREQ to intermediate nodes A-C (i.e. first node); and

retrieving first route channel identifier data associated with the first route from the first Path Marker Request message, the route first channel identifier data identifying all intermediate MANET nodes in the first route coupling the first MANET node to the source MANET node (column 5 lines 3-31, read as the source node sends the route request RREQ to intermediate nodes A-C (i.e. first node). If the node can support the particular request RREQ, then the node forwards the route request RREQ to other intermediate nodes (i.e. retrieving route request and making a determination of the data associated with first route), said first route channel identifier data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said source MANET node (column 5 lines 3-18, read as the source node sends the route request RREQ to intermediate nodes A-C).

Billhartz discloses the claimed invention except he fails to explicitly disclose topology (Billhartz discloses a channel identifier).

However, Lipasti et al. (hereinafter Lipasti) disclose topology (paragraph 10, read as routing addresses).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the method of Billhartz in

order to reduce the bandwidth-intensive broadcast traffic in the mobile ad hoc networks (paragraph 10).

Consider **claim 2 and as applied to claim 1**. Billhartz and Lipasti disclose the first MANET node wherein said controller stores said first retrieved route topology data in a route table associated with said controller (Lipasti; paragraph 84, read as Intermediary nodes have to determine the path on the basis of the L2.5 routing address either based on stored paths (routing table) or on dynamically obtained paths).

Consider **claim 3 and as applied to claim 2**. Billhartz and Lipasti disclose the first MANET node wherein said retrieved first route topology data from said first Path Marker Request message comprises an IP address associated with each of said all intermediate nodes in said first route coupling said first MANET node to said source MANET node (Lipasti; paragraph 10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the node of Billhartz in order to reduce the bandwidth-intensive broadcast traffic in the mobile ad hoc networks (paragraph 10).

Consider **claim 4 and as applied to claim 3**. The combination of Billhartz and Lipasti disclose the first MANET node wherein said controller appends an IP address associated with said first MANET node to said first Path Marker Request message.

Consider **claim 5 and as applied to claim 4**. Billhartz and Lipasti disclose the first MANET node wherein said controller forwards said first Path Marker Request message with said

appended IP address to said destination MANET node via a next hop in said first route (Lipasti; paragraphs 10 and 99).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the node of Billhartz so that the route can be determined when the RREQ reaches either the destination itself, or an intermediate node with a fresh enough route to the destination (paragraph 99).

Consider **claim 6 and as applied to claim 5**. The combination of Billhartz and Lipasti disclose the first MANET node wherein said controller receives a first Path Marker Reply message generated by said destination MANET node and retrieves second route topology data associated with said first route from said first Path Marker Reply message, said retrieved second route topology data identifying all intermediate MANET nodes in said first route coupling said first MANET node to said destination MANET node (Billhartz; column 5 lines 3-31, Lipasti; paragraph 10).

Consider **claim 7 and as applied to claim 6**. Billhartz discloses the claimed invention except he fails to explicitly teach the first MANET node wherein said controller stores said second retrieved route topology data in said route table associated with said controller.

However, Lipasti discloses the first MANET node wherein said controller stores said second retrieved route topology data in said route table associated with said controller (paragraphs 84 and 87).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the node of Billhartz in order to determine the mechanism for path establishment (paragraph 87).

Consider **claim 8 and as applied to claim 7**. The combination of Billhartz and Lipasti disclose the first MANET node wherein said retrieved second route topology data from said first Path Marker Reply message comprises an IP address associated with each of said all intermediate nodes in said first route coupling said first MANET node to said destination MANET node.

Consider **claim 9 and as applied to claim 8**. Billhartz and Lipasti disclose the first MANET node wherein said controller appends an IP address associated with said first MANET node to said first Path Marker Reply message (Lipasti; paragraphs 10 and 99)..

Consider **claim 10 and as applied to claim 9**. Billhartz and Lipasti disclose the first MANET node wherein said controller forwards said first Path Marker Reply message with said appended IP address to said source MANET node via a next hop in said first route (Lipasti; paragraphs 10 and 99).

Consider **claim 12 and as applied to claim 11**. Billhartz and Lipasti disclose the method further comprising the step of storing the first retrieved route topology data in a route table in the first MANET node (Lipasti; paragraph 84, read as Intermediary nodes have to determine the path on the basis of the L2.5 routing address either based on stored paths (routing table) or on dynamically obtained paths).

Consider **claim 13 and as applied to claim 12**. Billhartz and Lipasti disclose the method wherein the retrieved first route topology data from the first Path Marker Request message comprises an IP address associated with each of the all intermediate nodes in the first route coupling the first MANET node to the source MANET node (Lipasti; paragraph 10).

Consider **claim 14 and as applied to claim 13**. The combination of Billhartz and Lipasti disclose the method further comprising the step of appending an IP address associated with the first MANET node to the first Path Marker Request message.

Consider **claim 15 and as applied to claim 14**. Billhartz and Lipasti disclose the method further comprising the step of forwarding the first Path Marker Request message with the appended IP address to the destination MANET node via a next hop in the first route (Lipasti; paragraphs 10 and 99).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the method of Billhartz so that the route can be determined when the RREQ reaches either the destination itself, or an intermediate node with a fresh enough route to the destination (paragraph 99).

Consider **claim 16 and as applied to claim 15**. The combination of Billhartz and Lipasti disclose the method further comprising the steps of: receiving a first Path Marker Reply message generated by the destination MANET node; and retrieving second route topology data associated with the first route from the first Path Marker Reply message, the retrieved second route topology data identifying all intermediate MANET nodes in the first route coupling the first

MANET node to the destination MANET node (Billhartz; column 5 lines 3-31, Lipasti; paragraph 10).

Consider **claim 17 and as applied to claim 16**. Billhartz discloses the claimed invention except he fails to explicitly teach the method further comprising the step of storing the second retrieved route topology data in the route table.

However, Lipasti discloses the method further comprising the step of storing the second retrieved route topology data in the route table (paragraphs 84 and 87).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teachings of Lipasti into the method of Billhartz in order to determine the mechanism for path establishment (paragraph 87).

Consider **claim 18 and as applied to claim 17**. The combination of Billhartz and Lipasti discloses the method wherein the retrieved second route topology data from the first Path Marker Reply message comprises an IP address associated with each of the all intermediate nodes in the first route coupling the first MANET node to the destination MANET node.

Consider **claim 19 and as applied to claim 18**. Billhartz and Lipasti discloses the method further comprising the step of appending an IP address associated with the first MANET node to the first Path Marker Reply message (Lipasti; paragraphs 10 and 99)..

Consider **claim 20 and as applied to claim 19**. Billhartz and Lipasti disclose the method further comprising the step of forwarding the first Path Marker Reply message with the appended

IP address to the source MANET node via a next hop in the first route (Lipasti; paragraphs 10 and 99).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to:**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Brandt whose telephone number is (571) 270-1098. The examiner can normally be reached on 7:30a.m. to 5p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

Christopher M. Brandt

C.M.B./cmb

July 12, 2007

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